
COURSE MEDICINAL CHEMISTRY II

ACADEMIC YEAR: 2017-18

TYPE OF EDUCATIONAL ACTIVITY: Characterizing

TEACHER: MANFRA MICHELE

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mobile (optional):

Language: ITALIAN

ECTS: 12 of lessons	n. 96 of hours: of lessons	Campus: Potenza Dept./School: Department of Sciences Program: Pharmacy (LM-13)	Semester: I (Anticipated dates of the beginning and end of the course: 02/10/2017, 30/01/2018
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EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The course aims to provide students with Knowledge concerning the strategy drug Design, synthesis and study of mechanism of action at the molecular level and chemical toxicology aspects and structure and activity relationships and biological activity of drugs. For this purpose, the physical-chemical properties and stereo-electronic properties of drugs will be analyzed in a critical way and placed in relation to the therapeutic use of the test drug and will be analyzed and discussed the realization of synthetic drugs on the market. Also will be discussed potential structural changes dictated by metabolic processes that allow to modulate the profile of a drug to its therapeutic use. It is expected that the student acquires knowledge of basic concepts related to chemical and molecular study of drugs and is able to discuss the mechanisms of action and structure-activity relationships on the basis of the chemical characteristics of the molecules involved. It is expected that the students acquire the essential elements for designing drugs on a rational basis.

PRE-REQUIREMENTSOrganic chemistry, Medicinal chemistry I

SYLLABUS**Part I: Principles of Drug Discovery (11 h)**

Drug Discovery from Natural Products, Drug Design and Relationship of Functional Groups to Pharmacologic Activity .Molecular Modeling .Receptors and Drug Action

Part II: Drug Receptors Affecting Neurotransmission and Enzymes as Catalytic Receptors (18 h)

Drugs Affecting Cholinergic Neurotransmission. Adrenergic Receptors and Drugs Affecting Adrenergic Neurotransmission .Serotonin Receptors and Drugs Affecting Serotonergic Neurotransmission .Amino Acid Neurotransmitters in the Central Nervous System . Inhibitors of Nerve Conduction: Local Anesthetics .Phosphodiesterase Inhibitors

Part III: Pharmacodynamic Agents**Section 1: Drugs Affecting Central Nervous System (18h)**

General Anesthetics. Sedative-Hypnotics. Antiseizure Agents . Antidepressants. Psychotherapeutic Drugs: Antipsychotic and Anxiolytic Agents .Hallucinogens, Stimulants and Related Drugs of Abuse Opioid Analgesics. Drugs Used to Treat Neuromuscular Disorders: Antiparkinsonian and Spasmolytic Agents

Section 2: Drugs Affecting the Cardiovascular System (25 h)

Cardiac Agents: Cardiac Glycosides, Antianginal, and Antiarrhythmic Drugs . Diuretics. Angiotensin Converting Enzyme Inhibitors, Antagonists and Calcium Blockers .Central and Peripheral Sympatholytics and Vasodilators .Antihyperlipoproteinemics and Inhibitors of Cholesterol Biosynthesis

Section 3: Drugs affecting the gastrointestinal system (18 h). Drugs for ulcer treatment. Antagonist of H2 receptors of histamine. Antimuscarinics (M2). Anti-helicobacter pylori. Antiacids. Drugs for the treatment of inflammations and allergies. Anti inflammatory non steroidal drugs. Anti histamines and other drugs.

Drugs for the treatment of endocrine and metabolic disorders (6 h). Anti lipidemics. Inhibitor of cholesterol biosynthesis and other drugs. Anti diabetes. Insulin and oral hypoglycemic agents. Corticosteroids and glucocorticoids. Drugs acting on the reproductive cycle. Estrogens and antiestrogens. Progestogenic and antiprogestinic. Androgens. Anabolic

TEACHING METHODS

Theoretical lessons and Laboratory tutorials For better learning in the classroom exercises will be performed to the design and synthesis of drugs

EVALUATION METHODS

ACHIEVEMENT OF THE OBJECTIVES IS CERTIFIED BY PASSING AN EXAM.THE EXAM PROVIDES FOR A PRELIMINARY WRITTEN EXAM TO AN ORAL EXAM THAT TAKES PLACE ON DIFFERENT CALENDARED DAYS. THE WRITTEN TEST CONSISTS OF FIVE ANSWER AND IT HAS A DURATION NOT EXCEEDING 120 MINUTES AND IS AIMED AT VERIFYING THE ABILITY TO PROPERLY APPLY THEORETICAL KNOWLEDGE AND THE ABILITY TO COMMUNICATE IN WRITING. THE ORAL TEST CONSISTS OF A 40-MINUTE DISCUSSION AIMED AT ASSESSING THE LEVEL OF KNOWLEDGE AND UNDERSTANDING ACQUIRED BY THE STUDENT ON THE THEORETICAL CONTENTS OF THE PROGRAM. THE ORAL TEST WILL ALSO ALLOW STUDENTS TO COMMUNICATE WITH THE LANGUAGE SKILLS AND AUTONOMOUS EXPOSURE ORGANIZATION ON THE SAME SUBJECTS WITH THEORETICAL CONTENT.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- D.A. Williams, T.L. Lemke, *Foye's Principi Di Chimica Farmaceutica*, Piccin.
- G.L. Patrick, *Introduzione Alla Chimica Farmaceutica*, Edises, II edizione
- Wilson&Gisvold *Chimica Farmaceutica* .Ed.CEA
- T. Nogrady, D. Weaver, *Medicinal Chemistry – A Molecular And Biochemical Approach*, 3rd Ed., Oxford University Press.
- Monografie della Collana "*Chimica dei recettori*", Editore C. Melchiorre, CLUEB (Bologna).
- C. Wermuth, *Le Applicazioni Della Chimica Farmaceutica*, Edises.
- P. Krosggaard-Larsen, T. Liljefors, U. Madsen Ed., *Textbook Of Drug Design And Discovery*, Taylor & Francis.
- *Goodman & Gilman's The Pharmacological Basis of Therapeutics*, Twelfth Edition, McGraw-Hill Medical Publishing Division (2011).
- *Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry-* Lippincott Williams & Wilkins
- Kleemann, Engel, Kutscher, Reichert, *Pharmaceutical Substances*, 5th ed., ThiemeVerlag. *Burger's Medicinal Chemistry, Drug Discovery and Development*. 7th edition. Wiley. *Journal of Medicinal Chemistry*, ACS.
- SLIDES OF COURSE TEACHER

INTERACTION WITH STUDENTS

Students will be received once a week, and every time they request it by appointment by mail

EXAMINATION SESSIONS (FORECAST)¹

08/01/2018, 20/02/2018,05/03/2018,19/06/2018,09/07/2018,19/09/2018,02/10/2018,19/11/2018

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION

¹Subject to possible changes: check the web site of the Teacher or the Department/School for updates.

